



*Data clouds to tackle Asset Management lifecycle challenges !*

*Use of Linked Data and Semantic Web technologies*

Symposium Linked Data NL

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Beeld & Geluid, Hilversum, The Netherlands

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Platform Linked  
Data Nederland



## *Why the Data Train needs Semantic Rails*

*... Consequently, the need for and benefit from using Semantic Technologies increases as those three dimensions increase :*

- with an increasing data and domain diversity;*
- with an increasing role of data synthesis;*
- with an increasing importance of definiteness.*

**2015 - AI Magazine (AAAI)**

Janowicz, van Harmelen, Hendler and Hitzler

[http://geog.ucsb.edu/~jano/s4bd\\_intro\\_article.pdf](http://geog.ucsb.edu/~jano/s4bd_intro_article.pdf)

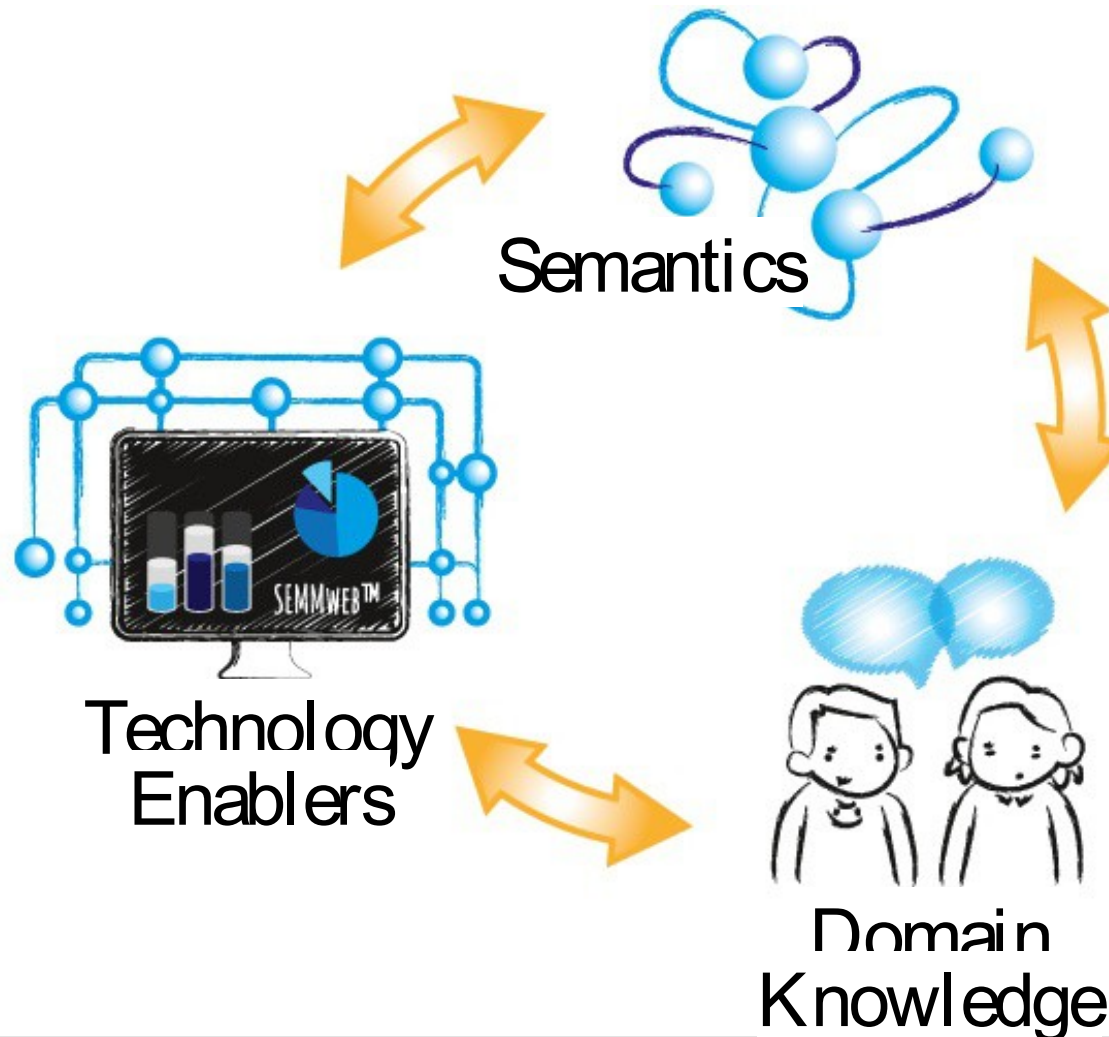


*What will we talk about ?*

- What does Semmtech do ?
- Who do we work for ?
- What's their challenge ?
- How do we solve this ?
- Use of Linked Data and Semantic Web technologies



*What does Semmtech do ?*





*Who do we work for?*

John laing  
making infrastructure happen

**ProRail**



**DEME**

Dredging, Environmental  
& Marine Engineering



**Strukton**



**heijmans**



Rijksoverheid



**Boskalis**



**ARCADIS**



**mobilis**  
TBI infra

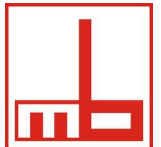


**STRABAG**



**Ballast Nedam**

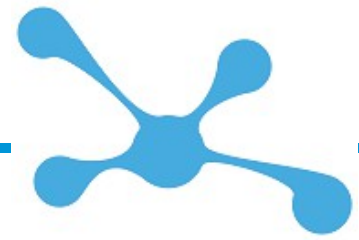
**DAMEN**



kennisplatform  
**CROW**



**BESIX**



*What's their challenge ?*

- asset scope of 25 years and more (product lifecycle)
- different specialised project-resources (consortium-based)
- all kinds of software applications (data-exchange)
- vast safety regulations (design validation)
- multi-million euro contracts (deliverable verification)



*What's their challenge ?*

## *Asset management lifecycle challenges*

How to manage resources owned for many years :

- that foresee in intensive customer use ;
- that reduce day-to-day operational costs ;
- and/or that diminish critical business risks .



### *What's their challenge ?*

- Requirements management
- Configuration management
- Life cycle management
- Document management
- Portfolio management
- Knowledge management
- Risk management



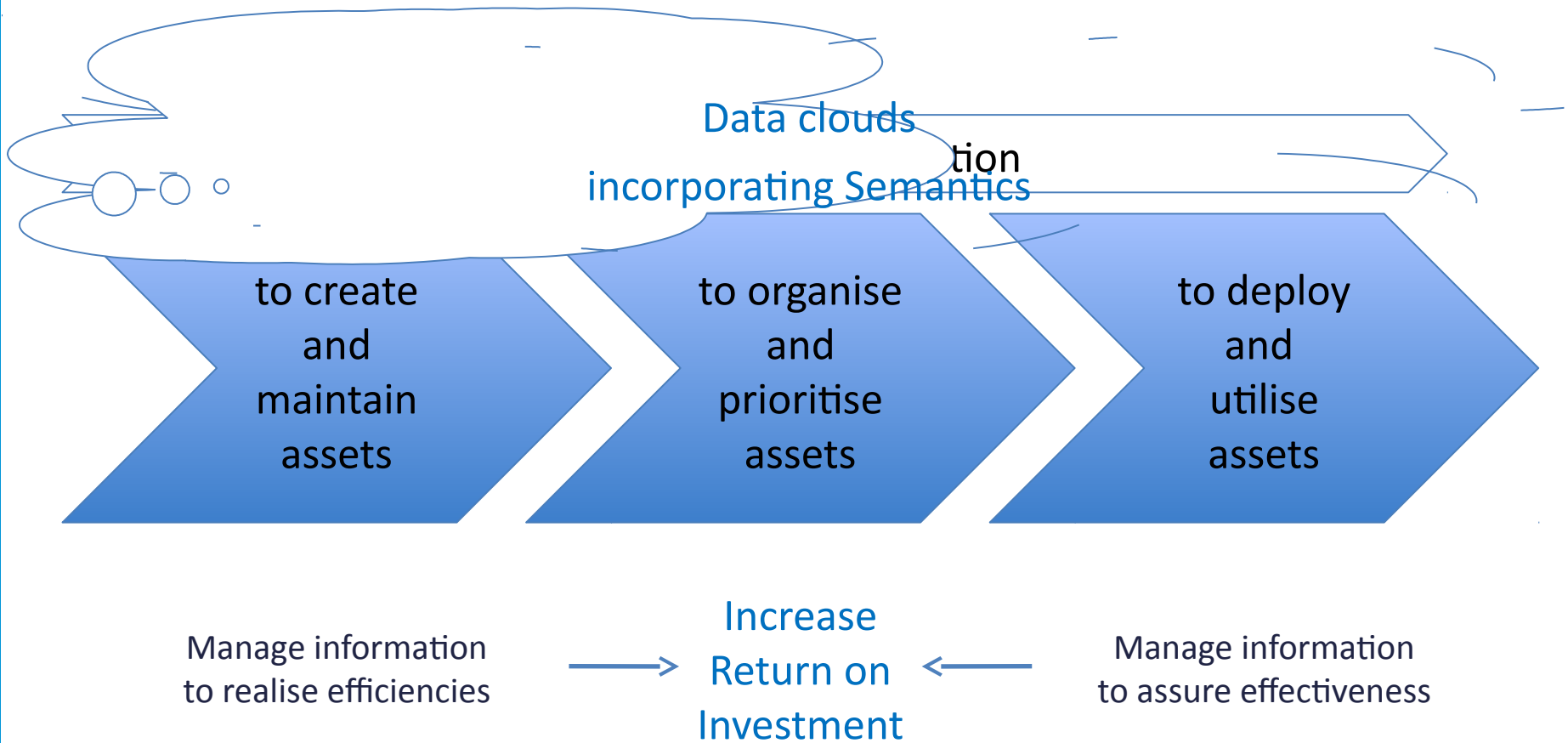
### Manage information on assets

- +++ data and domain diversity
- +++ need for data synthesis
- +++ focus on definiteness



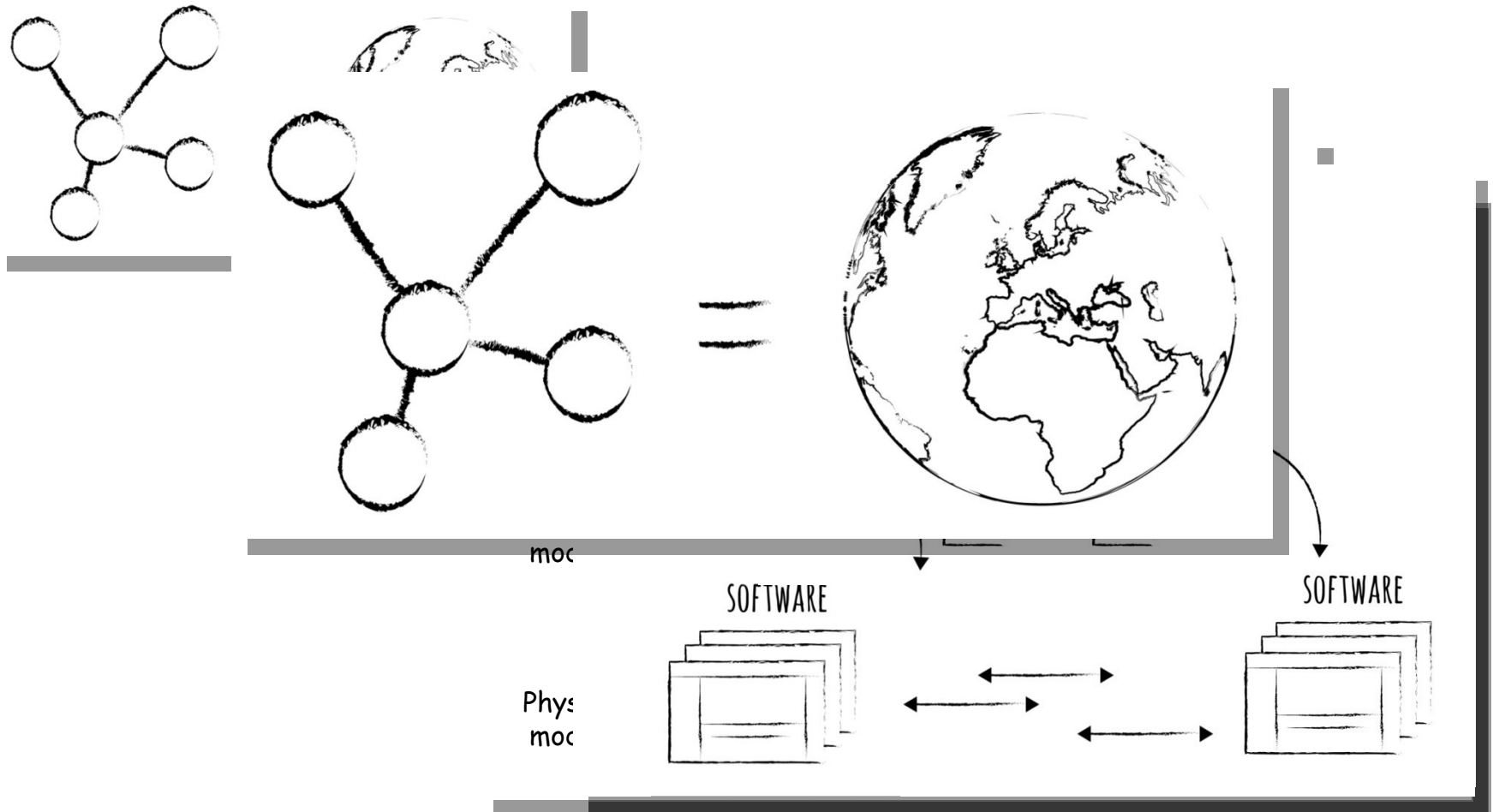


*How do we solve this ?*





*How do we solve this ?*





## *Use of Linked Data and Semantic Web technologies*

Proof :

- use of semantic standards (dictionaries as common denominators)
- use of existing software (for Systems Engineering, GIS, CAD ....)

.... suitable for actual commercial solutions



## *Use of Linked Data and Semantic Web technologies*

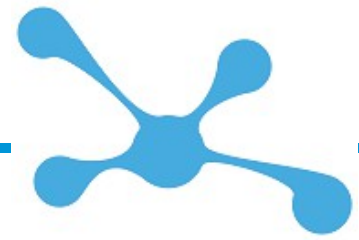
Proof points :

- to make information usable:
  - create semantic 'richness' that is fit for purpose
  - ease automation (less code, more usable content)
- to make information shareable:
  - connect different sources (and communities as 'source' owners)
  - make information accessible (via Internet)



*Use of Linked Data and Semantic Web technologies*

- Reuse standardised requirements on projects (dictionary-data cloud)
- Connect to GIS-based inspection data (asset- + dictionary-data clouds)
- Project data handover to asset owner (asset-data cloud)



## Use of Linked Data and Semantic Web technologies

The screenshot displays a Requirements Management tool interface. On the left, a sidebar shows a tree view of requirements, including sections like 'gebaseerd op | Bibliotheektype', 'code', 'bibliotheektype', 'tekst', 'Brondocument (specifiek)', 'titel', 'Bestand | Afbeelding', 'upload/download', 'Bovenliggende specificaties', and 'Onderliggende specificaties'. The main area shows a list of requirements with columns for ID, Description, and Status. A detailed view of a specific requirement is shown on the right, including a 'Details' panel with fields for Code, Name, Definition, and Rank. A 'Subjects' panel on the far right lists related subjects like 'VERIFICATIEPLAN', 'VAC', 'Discipline Vanwegen', 'Discipline Vri en Bewegwijering', 'Discipline Wegen', 'Afschermingsysteem', 'Belastingen', 'Wegdekreflector', 'Behouding', 'Kabels & ledingen', 'Makeningen', 'Provinciale wegen', 'Lidwispunten', 'Verbijpunten', 'Verhardingen', and 'Afschermingen'.

Requirements Library  
data cloud

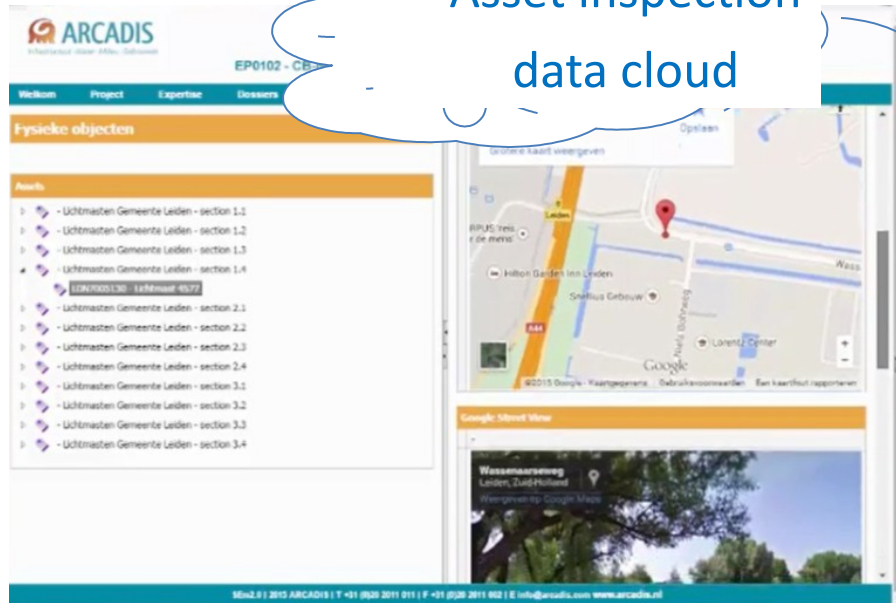
Requirements Management tool  
(incl. SEMMweb™-add on)

## Requirements Library Editor (SEMMweb™ Text Extractor)



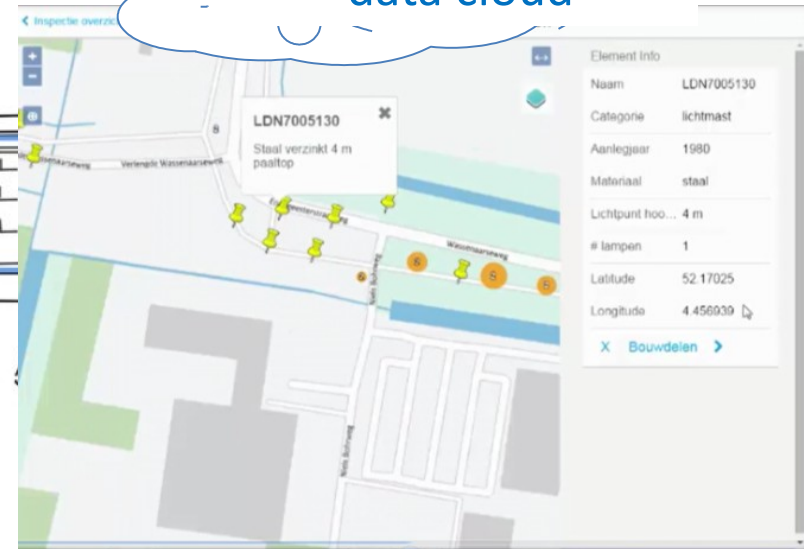
## Use of Linked Data and Semantic Web technologies

Asset inspection  
data cloud



Life Cycle Management tool  
(incl. SEMMweb™-add on  
+ GIS-frame)

NEN2767-dictionary  
data cloud

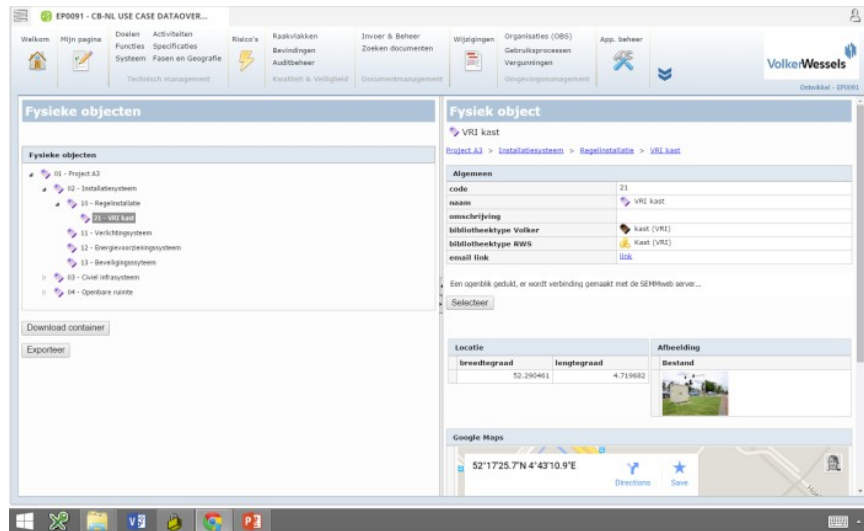


Mobile Inspection-app  
(custom-made)



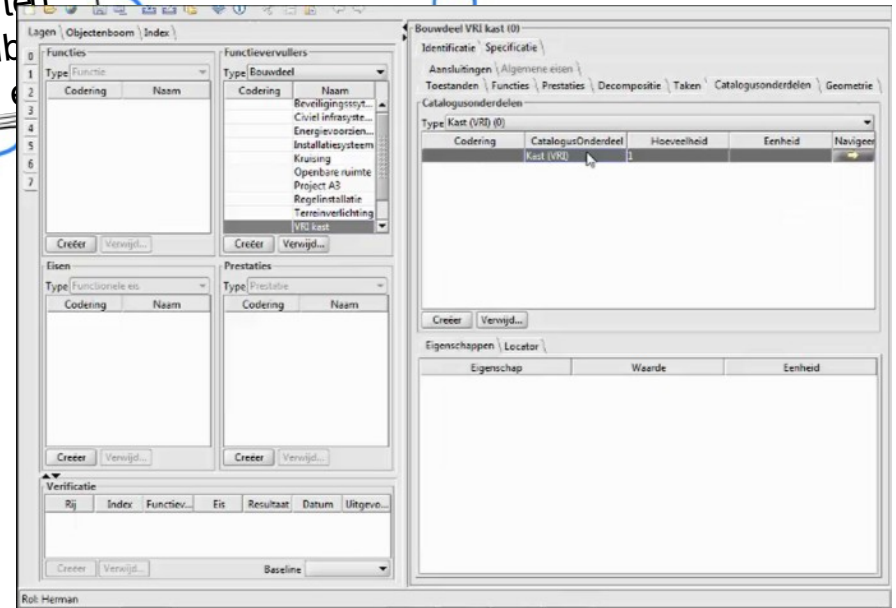


## Use of Linked Data and Semantic Web technologies



Systems Engineering tool  
(incl. SEMMweb™-add-on)

VW - OBJECT TYPE LIBRARY



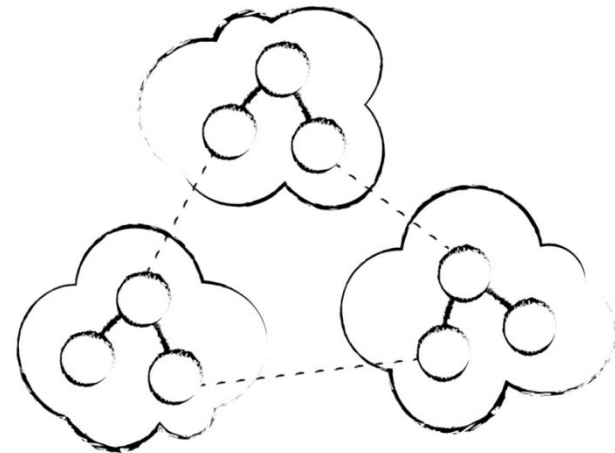
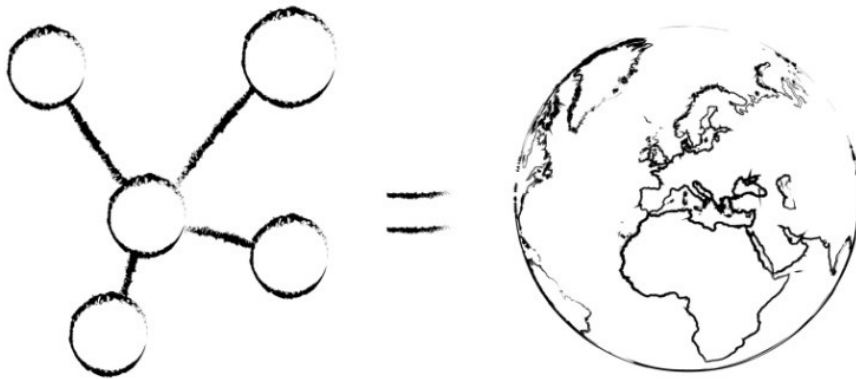
COINS Navigator





## *Use of Linked Data and Semantic Web technologies*

- Usable
- Shareable
- Re-usable





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